

# PATENT SPECIFICATION

1,012,074

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*Inventor:* SYDNEY ARTHUR HORGAN.

*Date of filing Complete Specification:* October 2, 1964.

*Application Date:* November 13, 1963.

*No.* 44839/63

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Int. Cl.:—B 65 d.

## COMPLETE SPECIFICATION

### DRAWINGS ATTACHED

### Carton End Closure

SPECIFICATION NO. 1,012,074

By a direction given under Section 17(1) of the Patents Act 1949 this application proceeded in the name of BOWATER PACKAGING LIMITED, a Company incorporated under the laws of the United Kingdom, of Bowater House, Knightsbridge, London, S.W.1.

THE PATENT OFFICE

D 60044/18

the construction of end closures therefor. A carton is erected by folding a blank into a body of rectangular section and each end of the body is closed by closure flaps 15 formed as extensions of the carton side wall; thus there are two pairs of opposite closure flaps, which for convenience may be identified as a pair of main end closure flaps, and a pair of secondary end closure flaps. In the formed end closure, the secondary end closure flaps are sandwiched between the main end closure flaps and all the flaps are adhesively secured together. The secondary closure flaps between them 25 do not extend over the whole area of the carton end and hence areas of the main closure flaps are exposed to each other for adhesive sealing. Such areas, however, are spaced from each other the thickness of the secondary end closure flaps which lie between the main end closure flaps and consequently a good seal between these latter flaps is not always obtained. 30 The present invention seeks to provide a construction of an end closure of a carton which does not have this disadvantage. According to the present invention a carton having a rectangular body and end closure means at one or both ends consists 35 of two oppositely disposed main end closure flaps and two oppositely disposed secondary end closure flaps, each formed as extensions of the walls of the body, said

are adhesively secured to the other main end closure flap, lying substantially co-planar. 55

A carton in accordance with the present invention is illustrated in the drawing accompanying the provisional specification in which:— 60

Figure 1 shows a plan view of the blank.

Figure 2 shows a perspective view of an end closure of the carton at an intermediate stage of formation, and

Figure 3 show a section along the line III-III, of Figure 2, of the fully formed carton end closure. 65

Referring to the drawing, the blank of Figure 1 includes body wall panels 1, 2, 3 and 4 and a glue flap 5. These panels and flap are joined along fold lines 6, 7, 8 and 9 so that by folding the panels and the flap with respect to each other about the fold lines, a carton body of rectangular section can be made with the flap 5 adhesively 75 secured to the panel 3. In the erected carton body, the panels 1 and 2 lie opposite to each other as do the panels 3 and 4. 80

With the carton erected from the blank shown in Figure 1, both of these ends are closed in identical manner in accordance with the present invention. It is to be understood, however, that the present invention is not limited to a carton having both ends closed in like manner but does 85 include a carton having only one end closure

[Price 4s. 6d.]

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#### Carton End Closure

- WE, THE BOWATER RESEARCH AND DEVELOPMENT COMPANY LIMITED, a British Company of Bowater House, Knightsbridge, London, S.W.1., do hereby declare the invention, for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—
- 10 This invention relates to cartons and to the construction of end closures therefor. A carton is erected by folding a blank into a body of rectangular section and each end of the body is closed by closure flaps 15 formed as extensions of the carton side wall; thus there are two pairs of opposite closure flaps, which for convenience may be identified as a pair of main end closure flaps, and a pair of secondary end closure 20 flaps. In the formed end closure, the secondary end closure flaps are sandwiched between the main end closure flaps and all the flaps are adhesively secured together. The secondary closure flaps between them 25 do not extend over the whole area of the carton end and hence areas of the main closure flaps are exposed to each other for adhesive sealing. Such areas, however, are spaced from each other the thickness of the 30 secondary end closure flaps which lie between the main end closure flaps and consequently a good seal between these latter flaps is not always obtained.
- 35 The present invention seeks to provide a construction of an end closure of a carton which does not have this disadvantage.
- According to the present invention a carton having a rectangular body and end closure means at one or both ends consists 40 of two oppositely disposed main end closure flaps and two oppositely disposed secondary end closure flaps, each formed as extensions of the walls of the body, said closure flaps being folded to lie across the end of the body and adhesively secured 45 together with the secondary flaps sandwiched between the main flaps, in which one main end closure flap is deformed, in those areas registering with the secondary end closure 50 flaps, out of its normal plane to accommodate said secondary end closure flaps, with the surfaces of the latter and the deformed main closure flap, which surfaces are adhesively secured to the other main 55 end closure flap, lying substantially coplanar.
- A carton in accordance with the present invention is illustrated in the drawing accompanying the provisional specification in which:—
- 60 Figure 1 shows a plan view of the blank, Figure 2 shows a perspective view of an end closure of the carton at an intermediate stage of formation, and Figure 3 show a section along the line 65 III-III, of Figure 2, of the fully formed carton end closure.
- Referring to the drawing, the blank of Figure 1 includes body wall panels 1, 2, 3 and 4 and a glue flap 5. These panels and 70 flap are joined along fold lines 6, 7, 8 and 9 so that by folding the panels and the flap with respect to each other about the fold lines, a carton body of rectangular section can be made with the flap 5 adhesively 75 secured to the panel 3. In the erected carton body, the panels 1 and 2 lie opposite to each other as do the panels 3 and 4.
- With the carton erected from the blank shown in Figure 1, both of these ends are 80 closed in identical manner in accordance with the present invention. It is to be understood, however, that the present invention is not limited to a carton having both ends closed in like manner but does 85 include a carton having only one end closure

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of the particular form as will be described, the other end being left open or closed in a different manner.

A main closure flap 10 is joined along a fold line 11 to the body wall panel 1 and a second main end closure flap 12 is joined along a fold line 13 to the body wall panel 2. A secondary end closure flap 14 is joined along a fold line 15 to the body wall panel 3 and a secondary end closure flap 16 is joined along a fold line 19 to the body wall panel 4. When the blank has been folded to provide a carton body of rectangular section, the main end closure flaps 10 and 12 form a pair of opposite closure flaps as do the secondary closure flaps 14 and 16.

The provision of two pairs of opposite end closure flaps is known and a carton end closure is formed by folding in first across the end of a carton, one of the main closure flaps, then folding over the opposite pair of secondary closure flaps to lie on top of the main closure flap that has been folded in and then finally folding over the other main closure flap, the closure flaps being adhesively secured together. Thus the pair of secondary closure flaps are sandwiched between the two main closure flaps but said two main closure flaps are spaced apart a distance corresponding to the thickness of the intervening secondary closure flaps and, therefore, a sift-proof adhesive seal between the two main closure flaps is not readily obtained. The present invention overcomes this disadvantage by deforming one or other of the main closure flaps 10 and 12 in those areas, which in the erected end closure register with the secondary closure flaps, to accommodate the thickness thereof, the deformation being to give either main closure flap a stepped configuration.

Referring to Figure 1, the main closure flap 12 has been deformed so that the surface of the flap in the area 20 lies below the surface of the flap in the area 21. The degree of off-setting between the surfaces of the areas 20 and 21 corresponds to the thickness of the secondary closure flaps 14 and 16. Thus, as can be seen in Figure 3, in the formed end closure, the surface of the secondary end closure flaps 14 and 16 and the surface of the area 21 of the main end closure flap 12, which surfaces are adhesively secured to the under surface of the other main end closure flap 10, lie substantially co-planar. A strong adhesive closure which is sift proof is thus obtained.

It is preferable that the main end closure flap which lies innermost shall be deformed so that the other main end closure flap, which is presented to the exterior of the carton has a neat smooth appearance.

The deformation of the main end closure flaps may be performed simultaneously as the carton blank is stamped, or cut from

a sheet or web of material. In stamping a carton blank, it is the known practice to employ appropriately arranged cutting edges, held in a frame, the blank being stamped from a sheet or web whilst lying against a back-up plate. The fold lines are pressed in the material forming the blank by ribs formed with rounded edges also held in the frame carrying the cutting edges. To prevent the blank from sticking to and remaining on the cutting edges after it has been stamped out, resiliently deformable pressure members are located between said cutting edges and the folding ribs, the surfaces of the pressure members, the cutting edges and the ribs, all being co-planar. To obtain a good fold line pieces of sheet material commonly called presspahn are arranged on the back-up member to form a channel or groove registering with each rib, which impresses a fold line in the blank. Conveniently these presspahn pieces may be employed to form the required deformations in the main closure flaps. Thus, referring to Figure 1, a presspahn piece of appropriate outline is located on the back-up member to coincide with the area 21 of the main end closure flap 12, said presspahn piece having sharp edges. Thus when the blank is stamped out, the area 20 of the main end closure flap 12 is pressed down against the surface of the back-up member by the resiliently deformable pressure members whilst the area 21 is maintained raised with respect thereto by the presspahn piece. To prevent the wall panel 2 from being deformed by the presspahn piece which lies thereunder during the stamping operation, the edges of said piece, except the edge which defines one side of the channel accommodating the rib which impresses the fold line 13, are chamfered and not left as sharp right angles as are the edges of the presspahn piece which registers with the area.

#### WHAT WE CLAIM IS:—

1. A carton having a rectangular body and end closure means at one or both ends consisting of two oppositely disposed main end closure flaps and two oppositely disposed secondary end closure flaps, each formed as extensions of the walls of the body, said closure flaps being folded to lie across the end of the body and adhesively secured together with the secondary flaps sandwiched between the main flaps, in which one main end closure flap is deformed, in those areas registering with the secondary end closure flaps, out of its normal plane to accommodate said secondary end closure flaps, with the surfaces of the latter and the deformed main closure flap, which surfaces are adhesively secured to the other main end closure flap, lying substantially co-planar.

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2. A carton with an end closure as before described with reference to the claimed in claim 1, in which the main end drawing accompanying the provisional 10 closure flap which lies innermost is deformed.
- 5 3. A carton according to claim 1 or 2 in which the main end closure flap which lies outermost is deformed.
4. A carton substantially as herein-

For the Applicants,  
CARPMAELS & RANSFORD,  
Chartered Patent Agents,  
24 Southampton Buildings,  
Chancery Lane, London, W.C.2.

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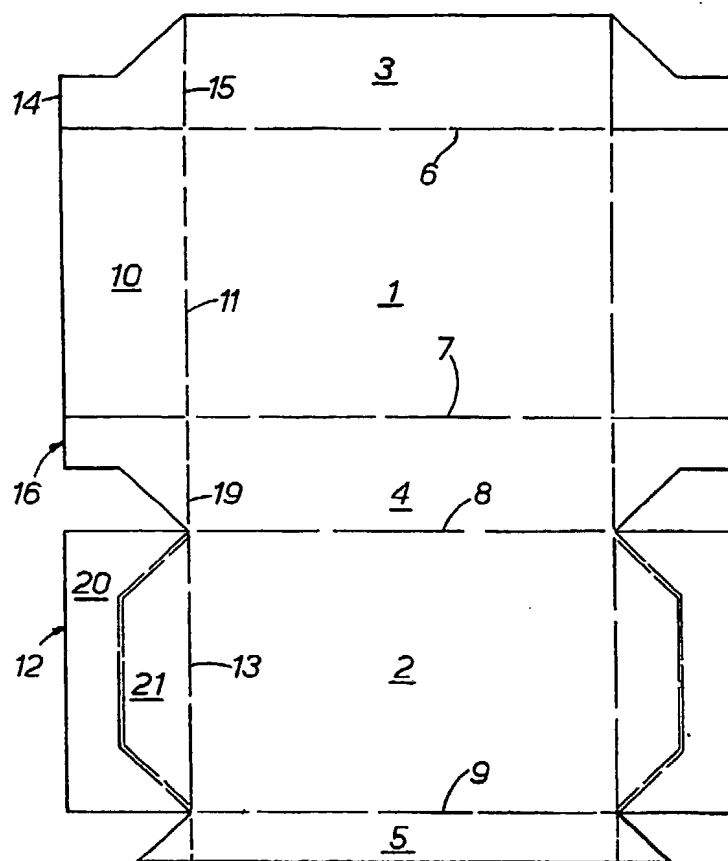


FIG.1.

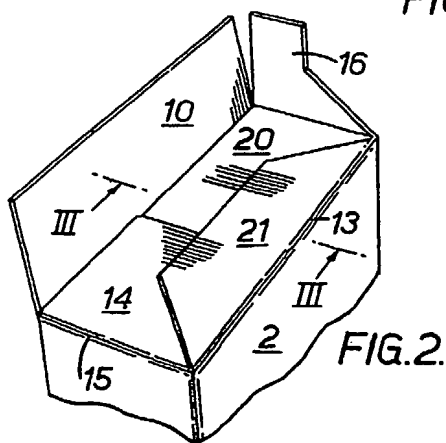


FIG.2.

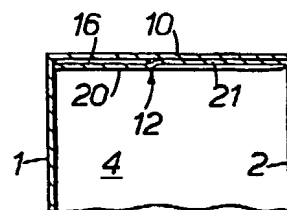


FIG.3.